

Claims

1. A method for locating matching points in two original images of a scene, a left image and a right image, such that the images have at least some overlap area, said method comprising:

selecting a first point within the overlap area in the right image;

running a first correspondence search using the first point to find a first matching point in the left image;

running a second correspondence search on the first matching point to find a second matching point in the right image, wherein the correspondence search is not run on any points to the left of the first matching point; and

selecting a match point comprising the first matching point and second matching point.

2. The method of claim 1, wherein the step of selecting a match point comprises selecting only those match points in which the second matching point is the same as the first matching point.

3. The method of claim 1, wherein the step of running a first correspondence search comprises running a classic stereo correspondence search.

4. The method of claim 3, wherein the second correspondence search uses a different matching algorithm than the algorithm used in the first correspondence search.

5. The method of claim 1, wherein the step of running a first correspondence search comprises running a correlation-based matching algorithm.

6. The method of claim 1, wherein the step of running a first correspondence search comprises running a feature-based matching algorithm.

7. The method of claim 1, wherein the step of running a first correspondence search comprises running a phase-based matching algorithm.

8. A method for locating matching points in two original images of a scene, a left image and a right image, such that the images have at least some overlap area, said method comprising:

splitting the left image and the right image into left subimages and right subimages, respectively, wherein each subimage comprises the values of only one of the color coordinates used to define the image with which it is associated;

pairing each left subimage with the right subimage which uses the same color coordinate values;

running a first correspondence search on each point in the overlap area of the right subimage, the search comprising the steps of:

running a correspondence search using a first point to find a first matching point in the left subimage;

running a second correspondence search on the first matching point to find a second matching point in the right subimage, wherein the correspondence search is not run on any points to the left of the first matching point;

selecting match points using the first matching point and the second matching point; and

storing each selected match point in a list of match points.

9. The method of claim 8, further comprising, for each given point in the right subimage used in the correspondence search:

comparing the matching points stored in the list of match points that correspond to the given point across each subimage pair; and

responsive to the matching points in the list of matching points being different for each subimage pair, removing the matching point from the list of match points.

10. The method of claim 9 further comprising the steps of:

retrieving a camera shift value, wherein the camera shift value represents the distance between the location used to capture the right image and the location used to capture the left image; and

creating a disparity map of the scene captured by the images by determining a disparity value for each point in the image, wherein values in the disparity map are calculated by using the distance between the match points that correspond to a the point in the disparity map in the list of match points in conjunction with the retrieved camera shift value.

11. The method of claim 10, wherein the step of creating a disparity map further comprises the substep of, responsive to a given disparity map point not having any corresponding match points in the list of match points, using the first calculated disparity value to the right of the disparity map point as the disparity value.

12. The method of claim 11, wherein the substep of using the first calculated disparity value comprises the substep of, responsive to the images being stored in a

color coordinate system that includes a brightness value, reducing the brightness value of the given disparity map point.

13. The method of claim 8, wherein the step of running a first correspondence search comprises running a classic stereo correspondence search.

14. The method of claim 13, wherein the second correspondence search uses a different matching algorithm than the algorithm used in the first correspondence search.

15. The method of claim 8, wherein the step of running a first correspondence search comprises running a correlation-based matching algorithm.

16. The method of claim 8, wherein the step of running a first correspondence search comprises running a feature-based matching algorithm.

17. The method of claim 8, wherein the step of running a first correspondence search comprises running a phase-based matching algorithm.

18. A system for locating matching points in two original images of a scene, a left image and a right image, such that the images have at least some overlap area, the system comprising:

a storage device for storing the images and executable code;

coupled to the storage device, means for selecting a first point within the overlap area in the right image;

coupled to the storage device, means for running a first correspondence search using the first point to find a first matching point in the left image;

coupled to the storage device, means for running a second correspondence search on the first matching point to find a second matching point in the right image; and

means for selecting match points using the first matching point and the second matching point.

19. A computer-readable medium containing a computer program for creating a list of match points in two images, said program containing instructions for directing the computer to execute the steps of:

splitting the left image and the right image into left subimages and right subimages, respectively, wherein each subimage comprises the values of only one of the color coordinates used to define the corresponding image;

pairing each left subimage with the right subimage which uses the same color coordinate values;

running a correspondence search on each point in the overlap area of the right subimage, the search comprising the steps of:

running a first correspondence search using a first point to find a first matching point in the left subimage;

running a second correspondence search on the first matching point to find a second matching point in the right subimage, wherein the correspondence search is not run on any points to the left of the first point; and

selecting match points using the first matching point and second matching point;

and

storing each selected match point in a list of match points.